PATENT ABSTRACTS OF JAPAN

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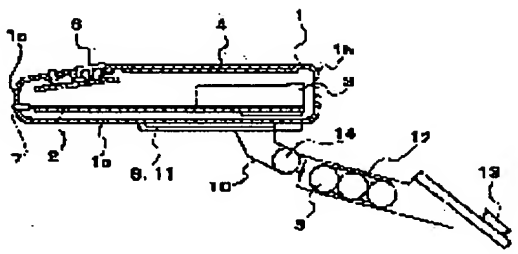
(54) VEHICULAR MICROWAVE DETECTOR

(57)Abstract:
PROBLEM TO BE SOLVED: To establish compatibility between the mobility and reliable support performance of a joint mechanism easily in vehicular microwave detectors whose detector body and other things are supported by the joint mechanism.
SOLUTION: The vehicular microwave detector comprises a support mechanism secured to a vehicle trimming structure, and a detector body 1 releasably attached to the support mechanism to detect microwaves of a preselected band. The support mechanism has a fixing base part 12 fixed to the vehicle trimming structure, a detector mounting part 10, 11 on which the detector body 1 is releasably mounted, and a joint mechanism 14 for coupling the fixing base part 12 and the detector mounting part 10, 11. The fixing base part 12 has a battery storage portion for accommodating batteries 5 as the power source for the detector body 1.



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* NOTICES *

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CLAIMS

[Claim(s)]
[Claim 1] In the microwave detection equipment for cars which has the support device fixed to the interior structure of a car, and the body of a detector which detects the microwave of the predetermined band attached in this support device free [attachment and detachment] The fixed supporter with which the above-mentioned support device is fixed to the interior structure of a car, and the detector applied part in which the above-mentioned body of a detector is attached free [attachment and detachment], It is microwave detection equipment for cars which has the joint device which combines this fixed supporter and this detector applied part, and is characterized by the above-mentioned fixed supporter having the cell hold section which holds the cell used as the power source of the body of a detector.
[Claim 2] It is microwave detection equipment for cars which has a rotation device for the above-mentioned joint device to adjust the angle of inclination of the body of a detector in the macro wave detection equipment for cars according to claim 1.
[Claim 3] It is microwave detection equipment for cars which has the device in which the above-mentioned rotation device rotates a detector applied part centering on at least 1 shaft in the microwave detection equipment for cars according to claim 2.
[Claim 4] The device in_which the above-mentioned detector applied part is rotated in the microwave detection equipment for cars according to claim 3 is microwave detection equipment for cars from which the another side is connected with a detector applied part, and it was made a detector applied part become rotatable centering on this cylinder and the shaft of a shaft by relative rotation of this cylinder and a shaft while consisting of the cylinders and shafts whose rotation is attained and connecting one of these with the fixed supporter.
[Claim 5] It is microwave detection equipment for cars from which the another side is connected with a detector applied part, and it was made to become rotatable [a detector applied part] in the direction of arbitration by the relative motion by the ball and the ball receptacle device while consisting of ball receptacle devices in which the above-mentioned joint device received a ball and this ball in the macro wave detection equipment for cars according to claim 2 and connecting one of these with the fixed supporter.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] This invention is carried in a car, relates to the microphone wave detection equipment for cars which detects the microwave of a predetermined band, and relates to the microwave detection equipment for cars of the structure where attachment and detachment of the body of a detector are attained from the fixed base object fixed to the interior structure of a car in detail.
[0002]
[Description of the Prior Art] Conventionally, what is indicated at the utility model registration No. 3044185 is proposed by the interior structure of cars, such as a dashboard of a car, and a front glass, as microwave detection equipment for cars by which fixed installation is carried out. This conventional microwave detection equipment for cars has structure equipped with the body of a detector (body of equipment), the connection plate, and the base plate.
[0003] The body of a detector carries out the internal organs of the main circuit substrate with which the detector of an antenna and microwave etc. was constituted, and the solar panel is installed in the top face of this body of a detector. A base plate is fixed to the interior structure of cars, such as a dashboard of a car, and a front glass. Moreover, the connection plate is supported by the joint device established on the base plate. And the microwave detection equipment with which the base plate, the connection plate, and the body of a detector were united is installed in a dashboard, a front glass, etc. of a car by equipping a connection plate with the connection device formed in the inferior surface of tongue of the body of a detector.
[0004] The rechargeable battery (for example, dry cell) other than a solar panel is used as a power source of the detector of the microwave by which internal organs were carried out to the body of a detector the sake [when such microwave detection equipment has Nighttime and the bad weather]. This rechargeable battery is held in the cell hold section prepared in the connection device formed in the inferior surface of tongue of the body of a detector, or the cell hold section which was united with the connection plate.
[0005]
[Problem(s) to be Solved by the Invention] With the above conventional microwave detection equipments for cars, the joint device prepared in the base plate is supporting the rechargeable battery held in the cell hold section which is united with this connection device or a connection plate with the body of a detector, a connection device, and a connection plate. In order that this joint device may adjust the direction of incidence of the microwave over the body of a detector, it must have the movability, and after adjustment must be the structure which can be certainly supported so that the body of a detector may not be moved by vibration of a car.
[0006] However, as mentioned above, since the load of the rechargeable battery which is united with a connection device or a connection play acts on a joint device as it is, it is comparatively difficult for it to consider as structure which is compatible with the above movability in the positive support engine performance.
[0007] Then, the technical problem of this invention is offering the structure which can be easily compatible in the movability of a joint device, and the positive support engine performance in the microwave detection equipment for cars of the structure which supports the body of a detector etc. by the joint device.
[0008]
[Means for Solving the Problem] In the microwave detection equipment for cars which has the support device in which this invention is fixed to the interior structure of a car in order to solve the above-mentioned technical problem, and the body of a detector which detects the microwave of the predetermined band attached free [attachment and detachment in this support device] The fixed supporter with which the

above-mentioned support device is fixed to the interior structure of a car, and the detector applied part in which the above-mentioned body of a detector is attached free [attachment and detachment], It has the joint device which combines this fixed supporter and this detector applied part, and the above-mentioned fixed supporter is constituted so that it may have the cell hold section which holds the cell used as the power source of the body of a detector.

[0009] With such microwave detection equipment for cars, since the cell used as the power source of the body of a detector is held in the fixed supporter only near [device / joint] the fixed part of a car, the load of this cell does not act on a joint device. Therefore, the structure is determined in consideration of the weight of the body of a detector with which a detector applied part and this detector applied part are equipped with a joint device.

[0010] In the above-mentioned microwave detection equipment for cars, this invention can constitute the above-mentioned joint device from a viewpoint that inclination adjustment of the body of a detector can be performed so that it may have a rotation device for adjusting the angle of inclination of the body of a detector.

[0011] Moreover, a rotation device can be constituted so that it may have concretely the device in which a detector applied part is rotated centering on at least 1 shaft.

[0012] Furthermore, this invention from a viewpoint that the simple rotation device in which a detector applied part is rotated centering on one shaft can be constituted While consisting of the cylinders and shafts which are that the device in which the above-mentioned detector applied part is rotated can be rotated and connecting one of these with a fixed supporter The another side is connected with a detector applied part, and by relative rotation of this cylinder and a shaft, centering on this cylinder and the shaft of a shaft, a detector applied part can constitute so that it may become rotatable.

[0013] Furthermore, the another side is connected with a detector applied part, and while it consists of ball receptacle devices in which a ball and this ball are received from a viewpoint that the sense of the body of a detector can be adjusted freely and one of these is connected with a fixed supporter, this invention can constitute the above-mentioned joint device from it by the relative motion by the ball and the ball receptacle device so that a detector applied part may become rotatable in the direction of arbitration.

[0014]

[Embodiment of the Invention] Hereafter, the gestalt of operation of this invention is explained based on a drawing.

[0015] The microwave detector for cars concerning one gestalt of operation of this invention is constituted as shown in drawing 1 - drawing 3 . Drawing 1 is the sectional side elevation of the whole microwave detector, drawing 2 is the sectional side elevation of the body of a detector, and drawing 3 is the sectional side elevation of the support device of the body of a detector.

[0016] The main circuit substrate 2 and the antenna (for example, horn antenna) 3 are held in the interior of the body 1 of a detector. The main circuit substrate 2 is installed along with case base 1a of the body 1 of a detector. The antenna 3 is mounted in the main circuit substrate 2 so that the opening may be turned to side-face 1b of the body 1 of a detector.

[0017] The control unit 6 and display 7 used as an interface with a user are installed in opening of the part for a forward surface part and the antenna 3 of the body 1 of a detector, and the part of side-face 1c of the opposite side. The control unit 6 made the subject the key switch panel equipped with the key of a predetermined number, and the display 7 is equipped with the display device of a predetermined number, for example, LED. In addition, the digital disposal circuit for control centering on the receiving digital disposal circuit and microcomputer which are connected to an antenna 3 is mounted in the main circuit substrate 2.

[0018] Moreover, the solar panel 4 is installed in the top face of the body 1 of a detector. The power source of the body 1 of a detector is constituted by the rechargeable battery 5 which is charged with this solar panel 4 and this output and which is mentioned later.

[0019] The connector device section 8 is formed in the inferior surface of tongue of the body 1 of a detector. This connector device section 8 is combined with the holder 11 of the support device shown in drawing 3 free [attachment and detachment].

[0020] The support device shown in drawing 3 has a bracket 12, the joint device 14, the anchoring stay 10, and a holder 11. The sucker 13 is formed in the base at the bracket 12. This bracket 12 is fixed to the interior structure of cars, such as a dashboard of a car, and a front glass, with a sucker 13.

[0021] The joint device 14 is established at the base of a bracket 12, and the tip by the side of reverse, and stay 10 is connected with the bracket 12 by this joint device 14. This joint device 14 turns into a device which supports stay 10 rotatable centering on at least 1 shaft to a bracket 12. The joint device 14 has the

structure where consist of the cylinders and shafts whose rotation is attained, a bracket 12 is fixed to this cylinder or a shaft, and stay 10 is fixed to the another side. And processing is suitably performed so that the slide contact side of a cylinder and a shaft may serve as predetermined coefficient of friction. According to such a joint device 14 of structure, stay 10 rotates centering on a shaft and a cylindrical shaft (same axle) by actuation of a user, and the inclination of stay 10 can be adjusted. Moreover, the include angle of stay 10 is maintained by slide contact face-to-face friction of a shaft and a cylinder after include-angle adjustment of stay 10.

[0022] In addition, the receptacle device of a ball and its ball can constitute the joint device 14, for example, without being restricted to the above structures. In this case, stay 10 can be leaned in the direction of arbitration.

[0023] The bracket 12 has the body case and the rechargeable battery 5 is held in this body case. Lid 12a is prepared in the body case of this bracket 12, and exchange of the rechargeable battery 5 within a body case is attained by opening this lid 12a. Moreover, wiring from a rechargeable battery 5 is extended from the body case of a bracket 12 to the holder 11 through the joint device 14 and stay 10. Forward and the negative electrode to which this wiring is connected are prepared in the holder 11.

[0024] The connector device section 8 prepared in the inferior surface of tongue of the body 1 of a detector has structure which can be freely detached and attached to the holder 11 of the support device mentioned above while making it slide. Forward and the negative electrode which are connected with power-source Rhine of a main circuit substrate are prepared in this connector style 8, and where the above-mentioned holder 11 is equipped with the connector device section 8, forward [which was prepared in the holder 11], forward [which were prepared in a negative electrode and the connector device section 8], and a negative electrode contact, respectively. While power is supplied to the main circuit substrate 2 within the body 1 of a detector from the rechargeable battery 5 which held the connector device section 8 in the bracket 12 according to such a device where a holder 11 is equipped, a rechargeable battery 5 is charged with a solar panel 4.

[0025] With the above microwave detection equipments for cars of structure, it equips making the connector device section 8 of the body 1 of a detector slide to a holder 11, and as shown in drawing 1 , the body 1 of a detector changes into the condition of having been combined with the support device. And a support device is made to fix to the dashboard or front glass of a car with a sucker 13. In this condition, the inclination of the body 1 of a detector is adjusted in consideration of the direction expected that microwave carries out incidence to the body 1 of a detector, and the direction where outdoor daylight irradiates the solar panel 4. In case the inclination of this body 1 of a detector is adjusted, the body 1 of a detector rotates focusing on the joint device 14.
 [0026] According to the microwave detection equipment for cars of the above structures, since the rechargeable battery 5 is held in the bracket 12 near [device / 14 / joint] the anchoring part of a car, the load of a rechargeable battery 5 does not act on the joint device 14. Therefore, it becomes possible [that what is necessary is just to have structure which can support the load of the body 1 of a detector enough (for example, coefficient of friction of the slide contact side of the cylinder and shaft which constitute the joint device 14 is not easy to take the weight of a rechargeable battery 5 into consideration)] to reconcile comparatively easily the movability and its positive support engine performance of the joint device 14.

[0027] In addition, in the above-mentioned example, a bracket 12 corresponds to a fixed supporter and the structure which consists of stay 10 and a holder 11 corresponds to a detector applied part.

[0028]

[Effect of the Invention] As mentioned above, since the load of the cell used as the power source of the body of a detector does not act on a joint device in the microwave detection equipment for cars of the structure which supports the body of a detector etc. by the joint device according to the invention in this application as explained, the movability of a joint device and the positive support engine performance can be made into the structure which can be easily compatible.

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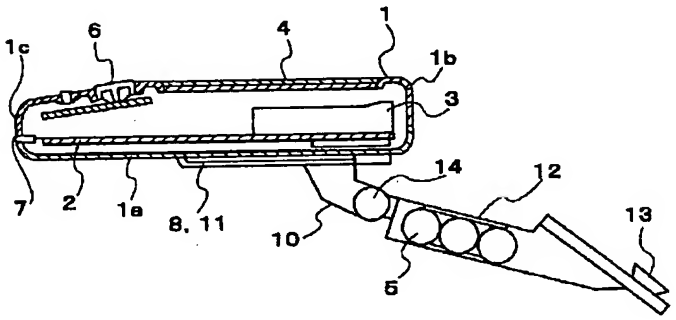
DRAWINGS

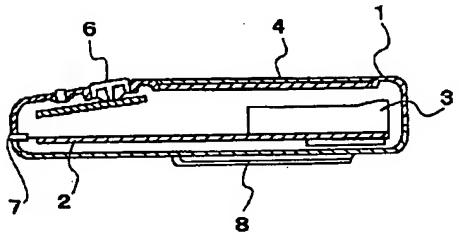
[Drawing 1]

図1



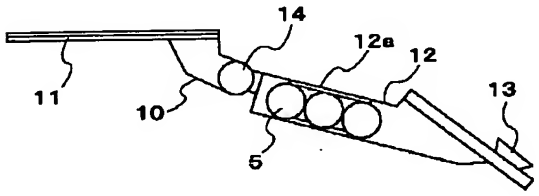
[Drawing 2]

図2



[Drawing 3]

図3



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WRITTEN AMENDMENT

---------- [a procedure revision]
[Filing Date] August 22, Heisei 12 (2000. 8.22)
[Procedure amendment 1]
[Document to be Amended] Specification
[Item(s) to be Amended] Claim 2
[Method of Amendment] Modification
[Proposed Amendment]
[Claim 2] In the microwave detection equipment for cars according to claim 1,
The above-mentioned joint device is microwave detection equipment for cars which has a rotation device for adjusting the angle of inclination of the body of a detector.
[Procedure amendment 2]
[Document to be Amended] Specification
[Item(s) to be Amended] 0001
[Method of Amendment] Modification
[Proposed Amendment]
[0001]
[Field of the Invention] This invention is carried in a car, relates to the microwave detection equipment for cars which detects the microwave of a predetermined band, and relates to the microwave detection equipment for cars of the structure where attachment and detachment of the body of a detector are attained from the fixed base object fixed to the interior structure of a car in detail.
[Procedure amendment 3]
[Document to be Amended] Specification
[Item(s) to be Amended] 0003
[Method of Amendment] Modification
[Proposed Amendment]
[0003] The body of a detector contains the main circuit substrate with which the detector of an antenna and microwave etc. was constituted, and the solar panel is installed in the top face of this body of a detector. A base plate is fixed to the interior structure of cars, such as a dashboard of a car, and a front glass. Moreover, the connection plate is supported by the joint device established on the base plate. And the microwave detection equipment with which the base plate, the connection plate, and the body of a detector were united is installed in a dashboard, a front glass, etc. of a car by equipping a connection plate with the connection device formed in the inferior surface of tongue of the body of a detector.
[Procedure amendment 4]
[Document to be Amended] Specification
[Item(s) to be Amended] 0004
[Method of Amendment] Modification
[Proposed Amendment]
[0004] The rechargeable battery (for example, dry cell) other than a solar panel is used as a power source of the detector of the microwave built in the body of a detector the sake [when such microwave detection equipment has Nighttime and the bad weather]. This rechargeable battery is held in the cell hold section prepared in the connection device formed in the inferior surface of tongue of the body of a detector, or the cell hold section which was united with the connection plate.
[Procedure amendment 5]

[Document to be Amended] Specification
[Item(s) to be Amended] 0006
[Method of Amendment] Modification
[Proposed Amendment]
[0006] However, as mentioned above, since the load of the rechargeable battery which is united with a connection device or a connection plate acts on a joint device as it is, it is comparatively difficult for it to consider as structure which is compatible in the above movability and the positive support engine performance.
[Procedure amendment 6]
[Document to be Amended] Specification
[Item(s) to be Amended] 0024
[Method of Amendment] Modification
[Proposed Amendment]
[0024] The connection device section 8 prepared in the inferior surface of tongue of the body 1 of a detector has structure which can be freely detached and attached to the holder 11 of the support device mentioned above while making it slide. Forward and the negative electrode which are connected with power-source Rhine of a main circuit substrate are prepared in this connection device section 8, and where the above-mentioned holder 11 is equipped with the connection device section 8, forward [which was prepared in the holder 11], forward [which were prepared in a negative electrode and the connection device section 8], and a negative electrode contact, respectively. While power is supplied to the main circuit substrate 2 within the body 1 of a detector from the rechargeable battery 5 which held the connection device section 8 in the bracket 12 according to such a device where a holder 11 is equipped, a rechargeable battery 5 is charged with a solar panel 4.
[Procedure amendment 7]
[Document to be Amended] Specification
[Item(s) to be Amended] 0025
[Method of Amendment] Modification
[Proposed Amendment]
[0025] With the above microwave detection equipments for cars of structure, it equips making the connection device section 8 of the body 1 of a detector slide to a holder 11, and as shown in drawing 1 , the body 1 of a detector changes into the condition of having been combined with the support device. And a support device is made to fix to the dashboard or front glass of a car with a sucker 13. In this condition, the inclination of the body 1 of a detector is adjusted in consideration of the direction expected that microwave carries out incidence to the body 1 of a detector, and the direction where outdoor daylight irradiates a solar panel 4. In case the inclination of this body 1 of a detector is adjusted, the body 1 of a detector rotates focusing on the joint device 14.
[Procedure amendment 8]
[Document to be Amended] Specification
[Item(s) to be Amended] 0026
[Method of Amendment] Modification
[Proposed Amendment]
[0026] According to the microwave detection equipment for cars of the above structures, since the rechargeable battery 5 is held in the bracket 12 near [device / 14 / joint] the anchoring part of a car, the load of a rechargeable battery 5 does not act on the joint device 14. Therefore, it becomes possible [that what is necessary is just to have structure which can support the load of the body 1 of a detector enough (for example, coefficient of friction of the slide contact side of the cylinder and shaft which constitute the joint device 14 does not need to take the weight of a rechargeable battery 5 into consideration)] to reconcile comparatively easily the movability and its positive support engine performance of the joint device 14.
[Procedure amendment 9]
[Document to be Amended] Specification
[Item(s) to be Amended] Explanation of a sign
[Method of Amendment] Modification
[Proposed Amendment]
[Description of Notations]
1 -- Body of a detector
2 -- Main circuit substrate

3 -- Horn antenna
4 -- Solar panel
5 -- Rechargeable battery
6 -- Control unit
7 -- Display
8 -- Connection device section
10 -- Stay
11 -- Holder
12 -- Bracket
13 -- Sucker
14 -- Joint device

[Translation done.]